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AUTHOR Swan, M. Beverly
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ABSTRACT

In order to study the complexity of sentence combining in college students, 32 students from five basic composition courses were asked to perform three writing tasks at three distinct times during the eight-week instructional period. Each student was asked to rewrite a passage of kernel sentences, to write a composition in the argumentative mode, and to rewrite the composition done in the argumentative mode. These three tasks were performed at the beginning of the course, eight weeks into the course, and at the end of the course, so that the researcher had nine samples of each student's writing. The syntactic development of the students' writing was measured using words per T-unit and words per clause. No significant changes were reflected at the T-unit level. A significant difference was found between the testings at the words per clause level. The change between the draft and the editing was not significant when the T-unit and clause lengths were used as criteria for change. It can be concluded that changes in syntactic complexity take place gradually, since the difference at the eight-week tests was not significant. (JF)

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SENTENCE-COMBINING AND COLLEGE COMPOSITION

M. Beverly Swan

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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That writers progress in a relatively automatic way from the coordinative stage of language development as in

I eat, and then I sleep

to the subordinative stage

After I eat, I sleep

to the less-than-clausal embedding stage.

After eating, I sleep

has been shown by many researchers who have studied language acquisition and development (Hunt, 1965; O'Donnell, Griffin, and Norris, 1967; Loban, 1963, 76). Specifically, writers employ more transformations as they mature and their writing becomes syntactically more complex as a result.

Various criteria have been used to measure syntactic development. Early researchers (e.g. Anderson, 1937) employed sentence length as a measure. Hunt (1965) provided a sounder basis for research into syntactic complexity with the T-unit or minimal terminable unit. This unit, an independent clause and whatever full or reduced clauses are embedded within it, was demonstrated to be sensitive to increases in syntactic manipulation. While the T-unit is not lengthened by coordination, a relatively unsophisticated language function, as is the sentence, it is affected by the subordinative stage of language development.

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It was further demonstrated that with older writers the clause was more sensitive to syntactic alteration than was the T-unit because the clause is lengthened by a greater number of transformations and less-than-clausal embeddings.

While studies have indicated that syntactic complexity increases with age and grade, studies have also indicated that increased complexity can be forced (Mellon, 1967; O'Hare, 1971; Combs, 1976) and that papers which are syntactically more complex receive higher ratings when evaluated by trained evaluators than those which were syntactically less complex. This increased complexity coupled with improvement in quality provides a rationale for employing teaching techniques which increase the syntactic complexity of writers.

The major studies cited above have observed a younger sample, specifically seventh graders. Experiments with college-level students have produced seemingly mixed results. Ney (1976) indicated that the syntactic complexity of students did not increase (when measured by words per T-unit and words per clause) when students were given eleven weeks of ten-minute-per-class instruction in sentence combining, the method which teaches students to manipulate kernel sentences to form more complex ones. Implicit in Ney's study is the theory that sentence combining is not a valuable tool for students who are past the stage when this instruction is useful to them.

A more detailed study and one which used more intensive instruction and practice in sentence combining over a fifteen week period is that done by Daiker, Kerek, and Morenberg (1977). The longer time period and the

more intensive practice resulted in syntactic gains on both T-unit and clause lengths and improved quality as reflected in higher ratings when papers were judged holistically and analytically. The longer time, then, appears to have contributed significantly to the increase in syntactic complexity.¹

The study reported herein, which also addresses the issue of sentence combining on the college level, departs from the other studies in that it employs an eight-week interim measure as well as a pre- and post-test in order to see when syntactic changes take place if indeed they do. In addition, syntax and syntactic alteration is viewed under three distinct situations--rewriting passages of kernel sentences, timed free writing on an assigned topic and an editing of that same free writing.

The purpose of this study, then, is to address the issue of sentence combining with college students and to investigate how those students alter their syntax when they receive this direct instruction. Since, as indicated in earlier research, students do lengthen T-units and clauses as they mature, it would prove valuable to see if they would increase their syntactic complexity not only in their free writing but also in the editing process. In other words, if students edited their own writing, would that editing result in syntactic strategies not present in the first draft writing?

Research Questions

While some automatic maturation in writing may occur with older students, it is possible, based on the evidence of previous research, that sentence combining for older students is an editing technique to be used, as

Moffett (1967) suggests, to make students aware of the possibilities.²

These notions, then, give rise to the following research questions:

1. Does syntactic complexity, as measured by words per T-unit and words per clause, increase when students have fifteen weeks of instruction in sentence combining?
2. If syntax is altered, would those alterations become evident on an eight-week interim measure? In other words, do the changes in syntax take place early in the instructional period?
3. Do college-level students learn the technique of sentence combining and apply it consciously in the editing process rather than automatically as would be evidenced in timed free writing? In other words, would a different configuration of syntactic adjustment appear between the writing and the editing of that writing?³

PROCEDURES

Sample selection Thirty two students from five intact basic composition courses at the University of were asked to perform three writing tasks at three distinct times during the instructional period.⁴ The students were sophomores, juniors, and seniors who took the course voluntarily. The three instructors who taught the five sections were selected from those who indicated an interest in sentence combining.

Instruction During the fifteen week instructional period, students received thirty minutes per week of instruction in transformational sentence combining using the text Sentence Combining: A Composing Book by William Strong. This time was divided evenly between (among) the class periods. Instructors varied the placement of the instruction; sometimes it took place at the beginning of the period and other times at the end. In addition, students were asked to write one of the exercises during the class period. This was done in addition to the instruction and not in place of it. Such in class sentence combining was collected by instructors so that the results could be reproduced for distribution during the next class.

Each student kept his/her sentence combining work in a journal which was checked regularly by the instructors. The Strong text is one without apparatus. No formal instruction in transformational grammar accompanied the teaching, and minimal terminology was employed by the instructors.

The in-class time was spent evaluating , discussing, and practicing the different types of transformations which resulted from the exercises. Other class time was devoted to forming sentences using patterns. The sentence combining exercises were used as the basis for lessons in clarity of expression, ambiguity, coordination, subordination, and embedding. Collecting the journals afforded the instructors the opportunity of seeing whether students were simply following those transformations with which they had no challenge and gained no new syntactic strategies.

In addition to assignments in the text, instructors encouraged students, in oral and written comments, to employ sentence-combining techniques in their free writing and editing as a way to improve their writing.

Students also received instruction in thesis development, organization and paragraphing. These are basic to all sections of this particular course whether sentence combining is taught or not. Students purchased The Random House Handbook as a reference for grammar and punctuation.

Testing Students were asked to rewrite a passage of kernel sentences so that the researcher could see if the method was learned and used deliberately when students were not generating content. This passage, comparable to Hunt's Aluminum passage, is referred to as a Controlled Stimulus Passage (CSP) since it provides the content and asks only that the students elect to perform various types of transformations in their rewriting of the passage. The second task asked students to write a composition on an assigned topic in the argumentative mode. Students were given one hour to complete the free writing sample. During the class period following the initial timed free writing, students were asked to rewrite that same composition "making it better." Students received no comments on their "draft" before they rewrote it. This final task has been identified as edited free writing.

These three tasks were written before the instructional period began, eight weeks into the semester and at the conclusion of the fifteen week instructional period. This provided the researcher with nine writing samples from each student.⁵

Measurement The syntactic development of the students was measured using words per T-unit and words per clause, the latter being the more sensitive measure with older writers. Clauses per T-unit was not used as a measure since that did not provide any informative data in two previous studies using a similar sample from the same population (, in press; , 1976). Each CSP, each free writing sample and each edited writing sample was analyzed using these variables.

Analysis of data Means and standard errors were determined for the lengths of the T-units and clauses for each of the nine tasks performed by the students during the instructional period. A Repeated Measure ANOVA was used to analyze the words per T-unit and words per clause variables for the three Controlled Stimulus Passages, the three timed writings and the three editings (Edwards, 1950, 1972; Winer 1971; Kerlinger, 1971). "In this sense each subject serves as his own control--responses of individual subjects to the treatment are measured in terms of deviations about a point which measures the average responsibility of that individual (Winer, 1971, p. 261)." Scheffé tests were used for a post hoc analysis to determine where the differences in means lay when a significant F ratio was found.

T-tests for non-independent samples were used to determine if changes took place between the first timed writing and the first editing. The same was done after pairing the second writing with the second editing and the third writing with the third editing.

RESULTS

The means and standard errors for the Controlled Stimulus Passage and for the free writing for this sample were not different from means found in previous studies using the same population (1976; , in press). Furthermore, the means for this sample were also similar to those determined by Daiker et al on a free writing sample administered to college freshmen prior to sentence-combining instruction (15.27 words per T-unit; 8.85 words per clause).

Insert Table 1 about here

Because different configurations appeared with the different tasks, it is necessary to discuss the tasks individually.

As mentioned earlier, the Controlled Stimulus Passage was given to measure whether students were actually putting into practice that which they were being taught in the classroom. No significant differences were found between any of the means on the words per T-unit variable. Indeed, the eight-week mean was lower than the retest mean although not significantly so. By the end of the instructional period, however, the students had regained their slight loss and had surpassed their original T-unit length, but, once again, this change was not a significant one.

On the timed free writing no significant differences appeared in T-unit length between any of the means although the mean for each of the tests was greater than the one before it. The edited writing

9

results mirror the same configuration as the free writing or draft writing with the words per T-unit variable, although once again the means increased with each successive testing. The instruction, then, did not contribute to increased syntactic complexity as measured by T-unit length.

The words per clause variable presented a pattern different from the words per T-unit variable. A significant difference was found between the testings. On the Controlled Stimulus Passage, Scheffé tests indicated that the post writing was significantly different from the pre-test. The interim measure did not distinguish itself.

Insert Table 2 about here

On the free writing and the edited free writing, the gains mirror those on the CSP. The pre- and post-tests were significantly different from each other, but the eight-week test was not significantly different from the other two. In other words, the gains did not occur rapidly, as might have been concluded if change on the eight-week test had been reflected, but gradually over the entire instructional period.

When viewed together, the three tasks provide for combined interpretation which tells much about the application of the method

Insert Table 3 about here

Insert Table 4 about here

of instruction under review. Initially, as expected, the lack of change in the syntactic structures at the T-unit level supports the argument that the T-unit is not a good criteria for older students.

The changes in the CSP and edited writing indicate that the students did indeed learn the method and could adjust clause length and did so when presented with content. Three distinct testing periods provided a reading of when the alterations were made. In other words, sentence combining might have been a technique which older students learned quickly, applied quickly deliberately and then automatically later. It might have been, on the other hand, a technique which required time for any results at all. Viewing the timing of the gains provides valuable data.

Insert Table 5 about here

On the Controlled Stimulus Passage and the edited free writing, the greater gain took place between the initial writing and the eight-week writing. This appears to indicate that the method was learned quickly. Students, then, lengthen their clauses in the process of editing before they do it automatically in draft writing. It is not until the post-test writing that students produced clauses which were significantly longer when writing their compositions for the first time. The editing did not reflect this later gain. The conclusion that might be drawn here is that older students are capable of learning the method and do apply it consciously as an editing technique early in the instructional period. When concentrating on improvement only, students exhibited a greater gain than when concentrating on generating content and quality.

By the post-testing period, the clause length gains in the free writing had become automatic; students were writing longer clauses on the initial theme before editing (notice the change of 1.06 in clause length from the eight-week writing to the post-writing), whereas earlier in the semester, the greater changes had been on the CSP and edited writing. The eight-week measure, then, provides

for the pinpointing of the gains.

Insert Figure 1 about here

Insert Figure 2 about here

No significant changes, either positive or negative, were reflected between the timed free writing and the edited free writing at any time during the semester. These data imply that while students were consciously trying to improve the themes they had written in class during one period by editing them during the next class period, they did not employ strategies which resulted in syntactic alterations of T-unit and clause length. It will require further investigation to determine what strategies took place between the writing and the editing.

CONCLUSIONS AND IMPLICATIONS

This research introduced typical college students to extensive

practice in sentence-combining using pre-designed materials from the text Sentence Combining: A Composing Book. Previous studies addressing sentence combining evaluated students' first drafts-- that is, the students were not provided with adequate time for rewriting. Daiker et al allowed students two hours to write their compositions assuming that in two hours students would have time for editing and rewriting. However, this does not allow time for rethinking and rewriting. The present design called for students to edit their papers after allowing them some time to gain a fresh perspective. This provided time for rewriting and also time to think more about the topic, although the students were unaware that they were going to be given the chance to edit or improve their papers.

Previous research on sentence combining used the pre-test-post-test design. Writing samples may have been collected during the instructional period, but those samples were used merely as checks and did not enter into the statistical analysis. The mid-point measure used in this research allowed the researcher to see where and when the specific gains or losses occurred and allowed for inferences from those data.

Direct instruction in transformational sentence combining for a fifteen week instructional period did result in syntactic modification. During the three testing sessions (pre, eight-week, and post) the T-unit variable did not change significantly on the

CSP, the timed free writing, or the edited free writing, but the students did adjust clause length on all three writing tasks as the instructional period progressed. The statistical analyses showed that the pre- and post-tests for all three tasks were significantly different from one another on clause length. Scheffe' tests did not distinguish the eight week tests from the other two. With the exception of the CSP, the means increased steadily on T-unit length; the means for the clause variable increased steadily on all three tasks.

Older students, then, can learn to adjust syntactic structures at the clausal level by making their clauses longer over the instructional period. The lengthening of clauses without the concomitant lengthening of T-units calls for sophisticated modification. More clauses must be written, which indicates that the student is using more subordination; but the student must also be using more embedding in order to keep the T-unit length from indicating any significant gain. In other words, students heeded the warnings by instructors that the longest possible sentence was not necessarily the best one. The adjustments, then, were within the clauses which means that less-than-clausal embeddings or reduced clauses were employed.

Viewing the syntactic data from the other perspective and looking to see what adjustments were made between writing and editing, the researcher found that neither the T-unit nor the clause exhibited any significant alteration at any of the three testing periods. Again

each writing sample with its coupled editing was syntactically more complex than the ones before it, but the change between the draft and the editing was not different when the T-unit and clause lengths were used as criteria for change.

The conclusion to be drawn from these data is that when students were told to improve their writing, they used strategies that did not manifest themselves in alteration of clause or T-unit length; there may have been other syntactic or even extra-syntactic adjustment. If the latter is true, the analysis of those will have to remain the domain of another study.

Patterns The pattern of learning differed during the instructional period. Initially in the treatment period, the students utilized and over utilized the sentence combining techniques; however, it appears that this is not the case in the second half of the semester where students seem to apply the results of the instruction more judiciously. The developmental syntactic data indicate this pattern. As mentioned earlier, students applied the techniques of transformational sentence combining early by changing clause length when not generating content. When generation of content was called for, the changes appeared later in the instructional period. The application of the technology, then, is applied in rewriting before it is applied in draft writing.

One element which surfaced during this research is the need for time with this type of instruction. The semester system may not be the most efficient for the teaching of this technique. It may be, for example, that more than fifteen weeks of direct instruction would result in greater syntactic gains. Longer time would

also prevent students from tiring of the technique.

The Daiker et al study demonstrated gains whereas the Ney study did not. Those gains are partially attributable to the fifteen weeks of instruction versus Ney's eleven. In addition, the students in the Daiker study received more intensive work in sentence combining. Ney's students received ten minutes per class. The present study exposed students to ten minutes of formal instruction as well as some informal instruction but did use the fifteen week format. Even with the shorter time per class, however, gains in matters syntactic were evidenced at the end of the fifteen week period. One might conclude, then, that the length of the instructional period is more important than the intensity of the instruction.⁶ The interim measure, therefore, provides us with the data for viewing the timing of changes and for coming to conclusions about the need for duration in instruction. Students need not be given sentence combining instruction exclusive of other writing instruction; what they do need is time to learn a process, to apply it and to absorb it.

FOOTNOTES

- 1 For a detailed discussion of a comparison between the Ney study and the Daiker et al study, see "Sentence-Combining and Syntactic Maturity in Freshman English," in College Composition and Communication, Vol. XXIX, February, 1978, pp.36-41.
- 2 This does not mean to imply that there would be a weakness in employing sentence combining as an editing technique. The point is made here simply to indicate that the increase in T-unit and clause length may not be automatic.
- 3 A part of the longer study involved a quality rating of all edited writing samples. The pre-tests were paired with the eight-week tests, the pre- with the post-tests, the eight-week with the post test, and, finally, all three grouped together. Trained evaluators consistently rated as better compositions which were written later in the semester. Those data are reported elsewhere.
- 4 The original sample was larger. Those students not completing all nine tasks (three CSP's, three timed writing samples, three edited writing samples were necessarily dropped from the sample. No attempt was made to retest since the test conditions could not be duplicated.
- 5 This is a modified one-group, time-series design (Ary, Jacobs, Razavieh, 1972). It allows for measuring the effects of the treatment at different times throughout the instructional period. While time-series designs usually use more than three intervals, the amount of time involved in the testing made that impossible here. A pure time-series design would also use several testings before the testings began in order to measure normal maturation. Previous research (, 1976) indicates that maturation did not take place at this level as was indicated by the lack of significant differences between freshmen and upperclassmen in T-unit and clause length in their own writing. This sample is drawn from the same population.
- 6 This comment, of course, invites further investigation.

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Table 1
Means and Standard Errors for Words per T-unit
and Words per Clause on Three Tasks at Three
Times During the Instructional Period

	CSP	Timed Free	Edited Writing
Pre-test			
W/TU	12.38 (.59)	15.79 (.62)	15.61 (.63)
W/CI	7.97 (.24)	9.07 (.27)	8.97 (.29)
Eight-week test			
W/TU	12.27 (.40)	15.89 (.53)	16.20 (.53)
W/CI	8.71 (.29)	9.53 (.32)	10.00 (.39)
Post-test			
W/TU	13.10 (.46)	16.44 (.57)	16.48 (.70)
W/CI	8.96 (.30)	10.59 (.32)	10.48 (.36)

Table 2
 Analysis of Variance: Words per Clause on Rewriting
 of Controlled Stimulus Passage

Source of Variation	df	MS	F
Between trials	2	8.58	8.17*
Within trials	93	2.46	
between S's	31	5.26	
trials x S's	62	1.05	
TOTAL	95		

*significant at or beyond the .01 level

Scheffé tests:

pre	mid	post
7.97	8.71	8.96

Table 3
 Analysis of Variance: Words per Clause
 on Timed Free Writing

Source of Variation	df	MS	F
Between trials	2	19.54	17.29*
Within trials	93	2.97	
between S's	31	6.64	
trials x S's	62	1.13	
TOTAL	95		

*significant at or beyond the .01 level

Scheffé test:		
Pre	mid	post
9.07	9.53	10.59

Table 4
 Analysis of Variance: Words per Clause
 on Edited Free Writing

Source of Variation	df	MS	F
Between trials	2	19.08	7.79*
Within trials	93	37.73	
Between S's	31	6.33	
Trials x S's	62	2.45	
	95		

*significant at or beyond the .01 level

Scheffé test:

Pre
8.97

Mid
10.00

Post
10.48

Table 5

Gains in Clause Length from Pre to Eight-week Writing
and from Eight-week Writing to Post Writing on CSP,
Timed Free Writing, and Edited Free Writing

Task	Gain pre to 8 weeks	Gain 8 weeks to post
CSP	.74	.28
Timed Free	.46	1.06
Edited Writing	1.03	.48

Figure 1
Visual Representation of Words per T-unit
on CSP, Free Writing, and Edited Free Writing
at Three Times during the Instructional
Period

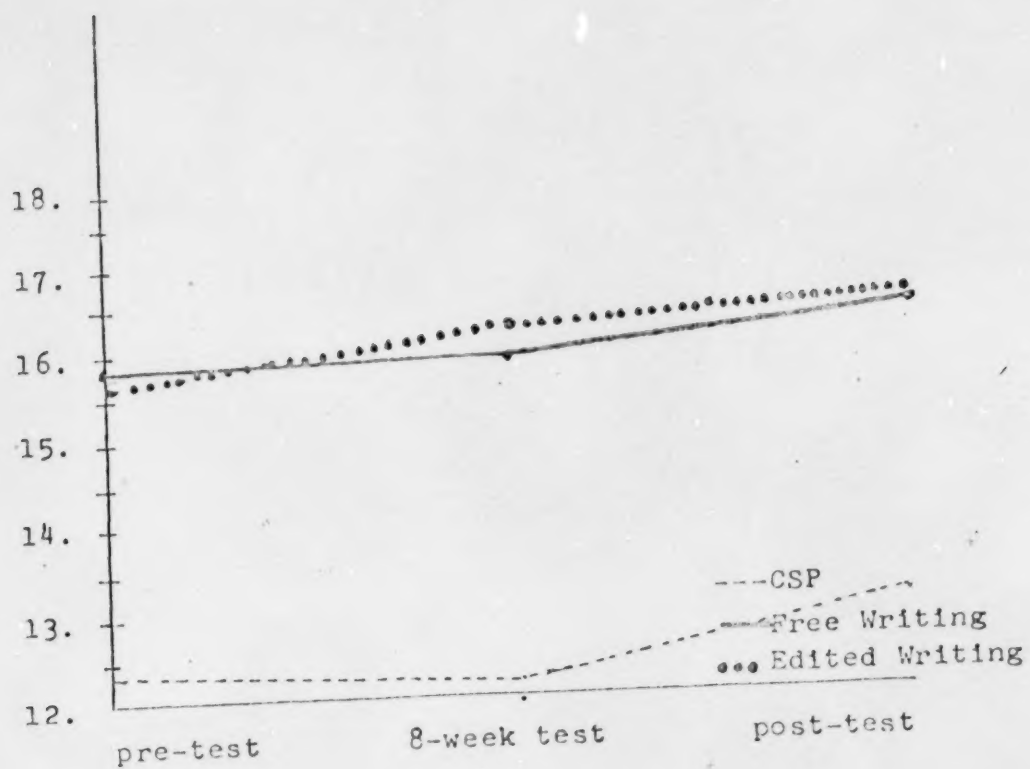


Figure 2
Visual Representation of Words per Clause
on CSP, Free Writing, and Edited Free Writing
at Three Times during the Instructional
Period

